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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,760	02/06/2002	Yoichi Iihoshi	381AS/49702DV	8415

7590 10/21/2003

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EXAMINER

NGUYEN, TU MINH

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 10/21/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/066,760

Applicant(s)

lihoshi et al.

Examiner

Tu M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Sep 29, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8 and 9 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 is/are allowed.
- 6) ☒ Claim(s) 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on Dec 10, 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/793,402.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other: _____

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DETAILED ACTION

1. An Applicant's Request for Continued Examination (RCE) and an Applicant's Amendment filed on September 29, 2003 have been entered.

Claims 8 and 9 have been amended and are pending in this application.

Drawings

2. The amended Figure 12 filed on December 10, 2002 has been approved for entry. Formal drawing of Figure 12 with the approved changes is required in reply to this Office Action.

Claim Objections

3. Claim 8 is objected to because on line 10 of the claim, "the" should read --a--.
- Appropriate correction is required.

Claim Rejections - 35 U.S.C. § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless --

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

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5. Claim 8 is rejected under 35 U.S.C. 102(e) as being anticipated by Kaneko et al. (U.S. Patent 6,041,591).

As shown in Figures 3 and 10-12, Kaneko et al. disclose an exhaust control system for a cylinder fuel injection engine, comprising:

- cylinder injection injectors (8) for directly injecting fuel into combustion chambers (1);
- a catalytic converter (9) provided in an exhaust passage (3) from the combustion chambers for purifying an exhaust gas; and
- a catalytic converter temperature measuring means (26) for measuring a temperature ($\theta_{C.C}$) of the catalytic converter for making an interval (t_{PLUS}) between auxiliary injections longer when the temperature of the catalytic converter is lower than a predetermined value (θ_o) (as indicated at step C90 in Figure 12, Figure 17(B), lines 9-36 of column 19, and lines 13-21 of column 20, if a temperature ($\theta_{C.C}$) of the catalytic converter (9) is less than a predetermined value (θ_o) (step C20 with YES answer), the controller (23) performs an expansion stroke fuel injection with a longer duration (t_{PLUS}) (because K2 is longer) if the temperature of the catalytic converter is lower),

wherein at least one time of auxiliary fuel injection is performed at a timing from expansion stroke to exhaust stroke after a primary injection in which a primary fuel is injected for obtaining an output of the engine, the primary fuel injection occurring before a timing of a spark ignition in a cylinder and the auxiliary fuel injection occurs in a cylinder in a predetermined period to increase concentration of carbon monoxide and hydrocarbon in the exhaust gas (according to

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Figure 11 and lines 11-21 of column 28, only cylinder #1 receives an auxiliary injection at the end of expansion stroke or during an exhaust stroke to increase HC and CO concentrations in the exhaust gas (also see lines 16-42 of column 26)), and

wherein a cylinder having no auxiliary fuel injection is operated with lean mixture and supplies surplus oxygen to the exhaust gas (according to Figure 11, cylinders #2-#4 have no auxiliary fuel injection and are operated lean to supply excess oxygen to the exhaust gas).

Allowable Subject Matter

6. Claim 9 is allowed.

Prior Art

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of two patents:

- Yamashita et al. (U.S. Patent 6,058,700) perform secondary fuel injection only when a temperature of a NOx absorbent is higher than a SOx releasing temperature.

- Ito et al. (U.S. Patent 6,378,297) inject several patterns of secondary fuel based on a temperature of a NOx absorbent for SOx regeneration.

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Communication

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (703) 308-2833.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (703) 308-2623. The fax phone number for this group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1148.

Tu M. Nguyen

TMN

October 19, 2003

Tu M. Nguyen

Patent Examiner

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